Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of the claims in the application:

1. (Cancelled)

2. (Currently Amended) A~~The~~ radiator element comprising: ~~of Claim 4~~

a first pair of notch radiator elements spaced apart from one another and disposed in a first plane, each of said notch radiator elements having a feed surface;

a second pair of notch radiator elements spaced apart from one another and disposed in a second plane which is substantially orthogonal to the first plane in which the first pair of notch radiator elements is disposed, such that the first pair of notch radiator elements are disposed to receive RF signals having a first polarization and the second pair of notch radiator elements are disposed to receive RF signals having a second polarization which is orthogonal to the first polarization, said first and second pairs of notch radiator elements being symmetrically disposed about a centerline defined by an intersection of the first and second planes and each of said notch radiator elements; and

a balanced symmetrical feed including:

a first pair of radio frequency (RF) feed lines, each of the RF feed lines disposed symmetrically about the centerline and each of the RF feed lines coupled to a feed surface the first pair of notch radiator elements; and

a second pair of RF feed lines, each of the RF feed lines disposed symmetrically about the centerline and each of the RF feed lines coupled to a feed surface of the second pair of notch radiator elements wherein with the first and second pairs of RF feed lines are coupled to the first and second pairs of notch radiator elements such that the first and second pairs of notch radiator

elements are provided having coincident phase centers adjacent the transition sections wherein the balanced symmetrical feed is provided as a raised balanced symmetrical feed and further comprises:

a housing having four sidewalls with each sidewall having an upper edge surface and a lower edge surface, the housing having a central longitudinal axis which is aligned with the centerline defined by the intersection of the first and second planes; and

a raised structure projecting from the upper edge surface of said sidewalls, said raised structure having a substantially pyramidal shape with each of the feed lines in the first and second pairs of feed lines disposed on one of the four sidewalls and on one of the four sides of the pyramidal-shaped structure wherein each of the feed lines have an end which terminates at a point on the pyramidal-shaped structure which is substantially aligned with the centerline defined by the intersection of the first and second planes.

3. (Previously Presented) The radiator element of Claim 2 wherein:

the feed lines are provided as microstrip transmission lines; and

each of the notch radiator elements are provided as fin-shaped substrates coupled to the pyramidal structure of said balanced symmetrical feed.

4. (Cancelled)

5. (Cancelled)

6. (Currently Amended) The radiator element of Claim ~~2~~1 wherein the notch radiator elements are each provided from an electrically conductive material.

7. (Previously Presented) The radiator element of Claim 6 wherein the notch radiator elements are each provided from a fin-shaped conductive substrate.

8. (Currently Amended) The radiator element of Claim ~~2~~1 wherein the notch radiator elements are each provided from a fin-shaped dielectric substrate having a conductive material disposed thereover.

9. (Currently Amended) The radiator element of Claim ~~2~~1 wherein each of the substrates has a height of less than approximately $0.25\lambda_L$, where λ_L corresponds to a wavelength of a low end of a range of operating wavelengths.

10. (Cancelled)

11. (Cancelled)

12. (Currently Amended) The radiator element of Claim ~~2~~1 wherein the balanced symmetrical feed further comprises:

a plurality of sidewalls, each of the sidewalls having first and second opposing surfaces, a top edge and a bottom edge, said sidewalls arranged to form a cavity having an open end; and

wherein each of the feed lines from the first and second pair of RF feed lines are disposed on one sidewall surface and are electromagnetically coupled to a corresponding one of the notch radiator elements.

13. (Currently Amended) The radiator element of Claim 12 wherein each of the RF feed lines has first end and a second end with the first end of each of the RF feed lines being coupled to the notch radiator ~~elementsand~~ elements and the radiator element further comprises a balun having a plurality of ports, each of the output ports coupled to a corresponding one of the second ends of the RF feed lines.

14. (Original) The radiator element of Claim 13 further comprising a pair of amplifiers each coupled between a corresponding one of the balun output ports and the second feed end of one of the RF feed lines.

15. (Previously Presented) A wideband antenna comprising:

a cavity plate having a first surface and a second opposing surface;

a first plurality of fins disposed on the first surface of the cavity plate spaced apart from one another forming a first plurality of tapered slots having a feed surface, said first plurality of fins disposed to receive radio frequency (RF) signals having a first polarization;

a second plurality of fins disposed on the first surface of the cavity plate spaced apart from one another forming a second plurality of tapered slots having a feed surface, each of said second plurality of fins disposed to receive RF signals having a second polarization, with the second polarization being substantially orthogonal to the first polarization; and

a plurality of balanced symmetrical feed circuits disposed on the first surface of said cavity plate, each of said plurality of balanced symmetrical feed circuits having two opposing pairs of radio frequency (RF) feed lines with each RF feed line from the first pair of RF feed lines electromagnetically coupled to the feed surface of a corresponding one of a first pair of fins of the first plurality of fins and each RF feed line from the second pair of RF feed lines coupled to the feed surface of respective one of a first pair of fins of the second plurality of fins wherein the feed lines from the balanced symmetrical feed circuits are coupled to the first and second plurality of fins such that the first and second plurality of fins are provided having coincident phase centers.

16. (Original) The wideband antenna of Claim 15 wherein the cavity plate further comprises a plurality of apertures; and

wherein each of the plurality of balanced symmetrical feed circuits is disposed in a corresponding one of the plurality of apertures.

17. (Original) The wideband antenna of Claim 17 further comprising a connector plate disposed adjacent the second surface of the cavity plate and having a plurality of connections;

and wherein each of the plurality of balanced symmetrical feed circuits has a plurality of feed connections each coupled to a corresponding one of the plurality of connector plate connections.

18. (Original) The antenna of Claim 15 wherein each of the fins has a height of less than about approximately $0.25\lambda_L$, where λ_L refers to the wavelength of the low end of a range of operating wavelengths.

19. (Original) The antenna of Claim 15 wherein each of the plurality of balanced symmetrical feed circuits is a raised feed circuit having a shape which conforms to the feed surfaces of a corresponding one of the plurality of fins.

20. (Original) The antenna of Claim 15 further comprising a plurality of baluns each coupled to a corresponding RF feed line.

21. (Original) The antenna of Claim 20 further comprising a plurality of RF connectors each coupled to a corresponding one of the plurality of baluns.

22. (Cancelled)

23. (Cancelled)

24. (Cancelled)

25. (New) A radiator element comprising:

a first pair of notch radiator elements spaced apart from one another and disposed in a first plane, each of said notch radiator elements having a feed surface and being capable of operating over a fractional bandwidth of not less the 3:1;

a second pair of notch radiator elements spaced apart from one another and disposed in a second plane which is substantially orthogonal to the first plane in which the first pair of notch radiator elements is disposed, such that the first pair of notch radiator elements are disposed to receive RF signals having a first polarization and the second pair of notch radiator elements are disposed to receive RF signals having a second polarization which is orthogonal to the first polarization, said first and second pairs of notch radiator elements being symmetrically disposed about a centerline defined by an intersection of the first and second planes and each of said notch radiator elements having a feed surface and being capable of operating over a fractional bandwidth of not less the 3:1; and

a raised balanced symmetrical feed including:

a first pair of radio frequency (RF) feed lines, each of the RF feed lines disposed symmetrically about the centerline and each of the RF feed lines coupled to a feed surface of the first pair of notch radiator elements;

a second pair of RF feed lines, each of the RF feed lines disposed symmetrically about the centerline and each of the RF feed lines coupled to a feed surface of the second pair of notch radiator elements wherein with the first and second pairs of RF feed lines are coupled to the first and second pairs of notch radiator elements such that the first and second pairs of notch radiator elements are provided having coincident phase centersdjacent the transition sections;

a housing having four sidewalls with each sidewall having an upper edge surface and a lower edge surface, the housing having a central

longitudinal axis which is aligned with the centerline defined by the intersection of the first and second planes; and

a raised structure projecting from the upper edge surface of said sidewalls, said raised structure having a substantially pyramidal shape with each of the feed lines in the first and second pairs of feed lines disposed on one of the four sidewalls and on one of the four sides of the pyramidal-shaped structure wherein each of the feed lines have an end which terminates at a point on the pyramidal-shaped structure which is substantially aligned with the centerline defined by the intersection of the first and second planes.

26. (New) The radiator element of claim 25 wherein:

the feed lines are provided as microstrip transmission lines; and

each of the notch radiator elements are provided as fin-shaped substrates coupled to the pyramidal structure of said balanced symmetrical feed.

27. (New) The radiator element of claim 25 wherein the notch radiator elements are each provided from an electrically conductive material.

28. (New) The radiator element of claim 25 wherein the notch radiator elements are each provided from a fin-shaped conductive substrate.

29. (New) The radiator element of claim 25 wherein the notch radiator elements are each provided from a fin-shaped dielectric substrate having a conductive material disposed thereover.

30. (New) The radiator element of claim 25 wherein each of the substrates has a height of less than approximately $0.25\lambda_L$, where λ_L corresponds to a wavelength of a low end of a range of operating wavelengths.

31. (New) The radiator element of claim 25 wherein:

said sidewalls of the balanced symmetrical feed are arranged to form a cavity having an open end; and

each of the feed lines from the first and second pair of RF feed lines are disposed on one sidewall surface and are electromagnetically coupled to a corresponding one of the notch radiator elements.

32. (New) The radiator element of claim 31 wherein each of the RF feed lines has first end and a second end with the first end of each of the RF feed lines being coupled to the notch radiator elements and the radiator element further comprises a balun having a plurality of ports, each of the output ports coupled to a corresponding one of the second ends of the RF feed lines.

33. (New) The radiator element of Claim 32 further comprising a pair of amplifiers each coupled between a corresponding one of the balun output ports and the second feed end of one of the RF feed lines.